

## Comparison between K value and PFC value on Dry surface

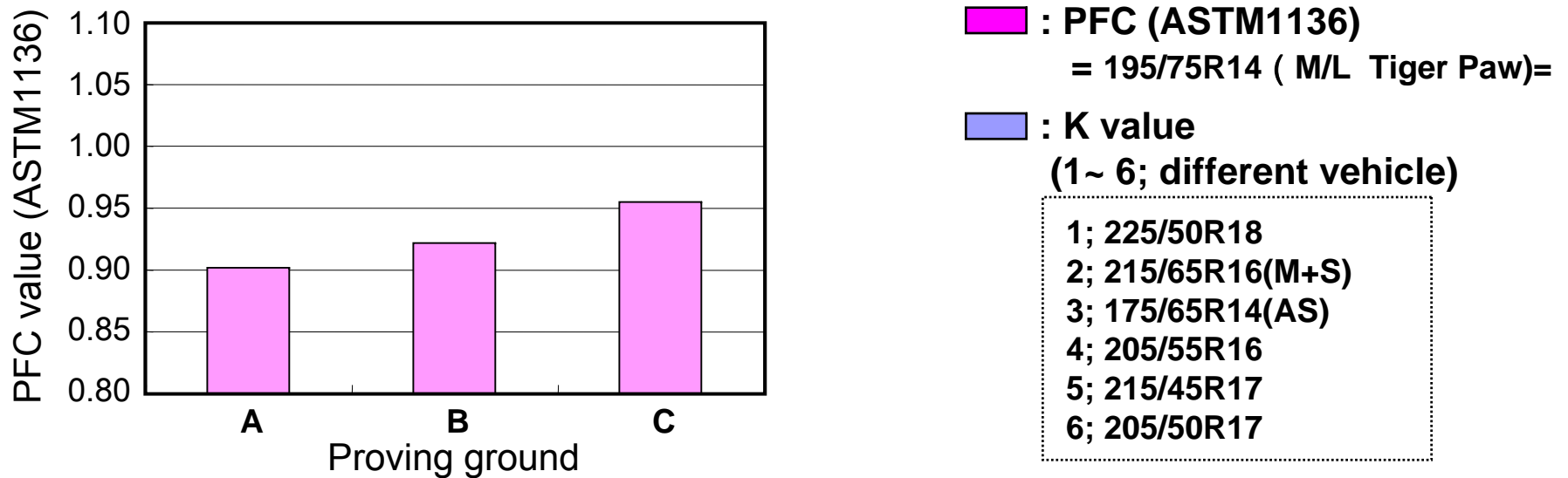


Fig. 1 : Friction Coefficient between typical proving ground

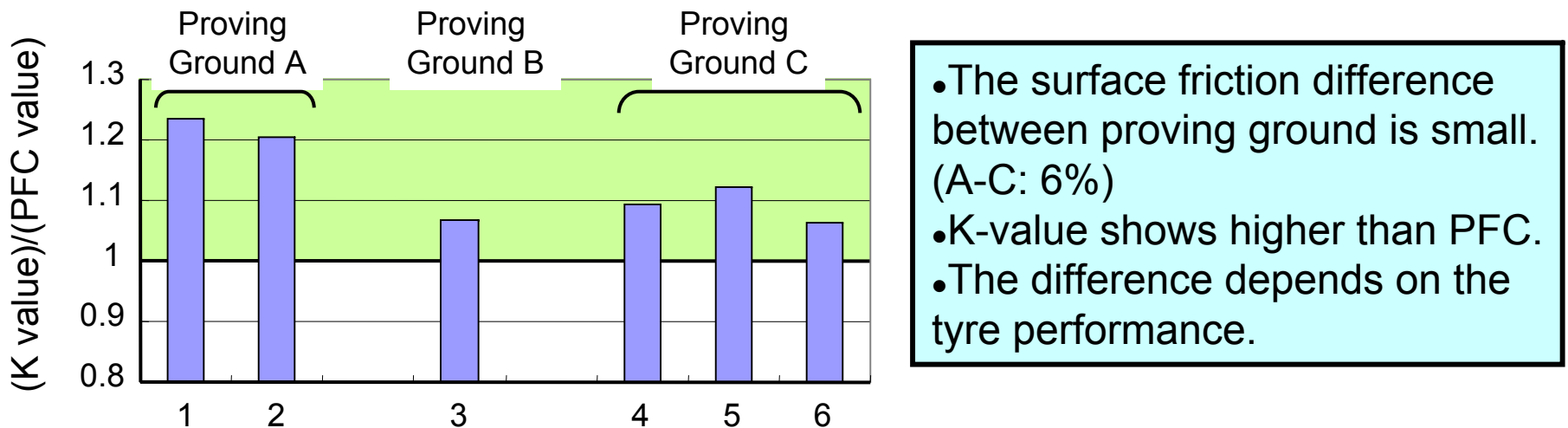


Fig. 2 : The Ratio of K-value to PFC value for passenger cars

# Lateral Displacement Influenced by Surface Friction(1)

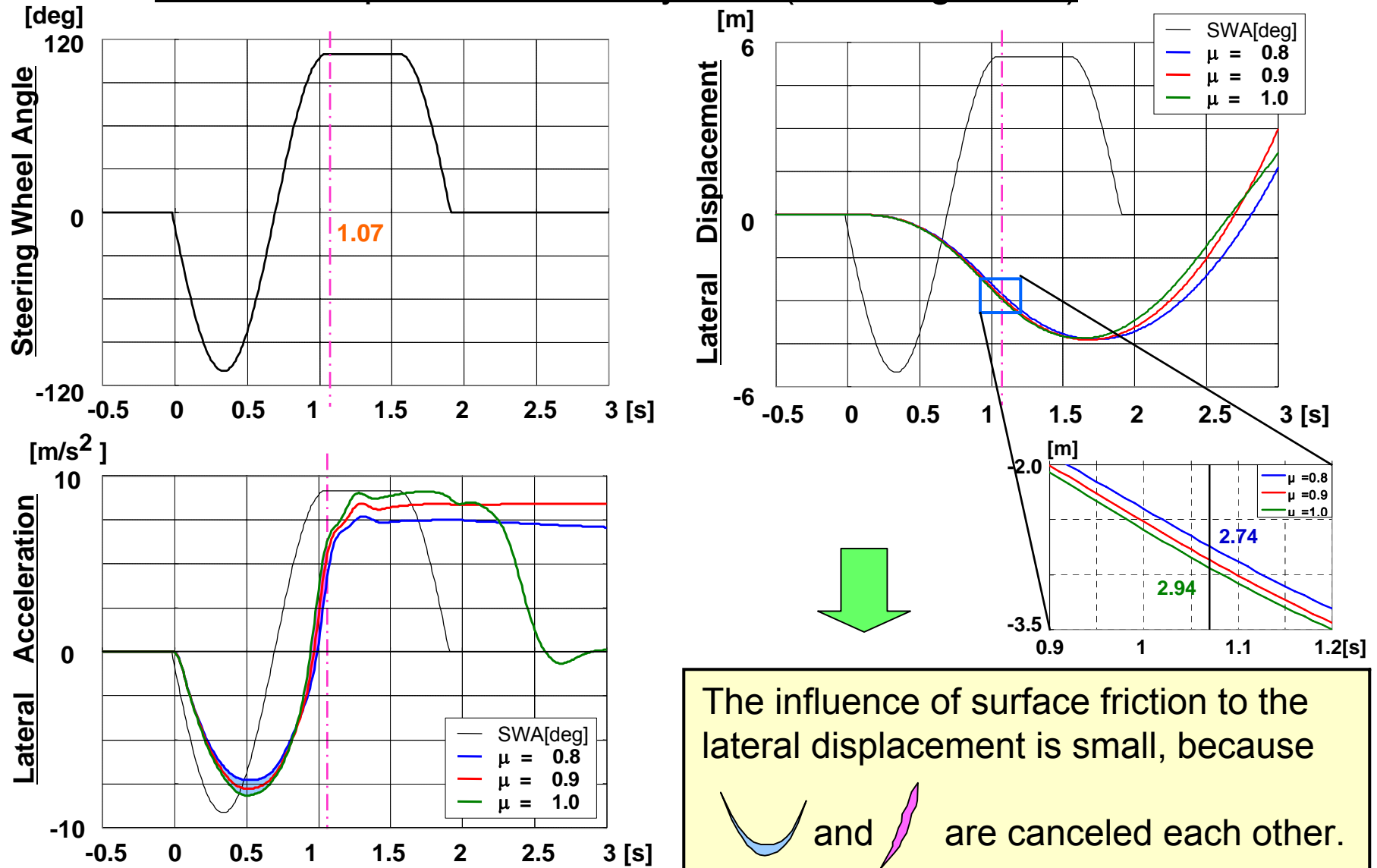
## 1. Contents of Study:

- The comparison of lateral displacement on the different surface friction coeff. (0.8, 0.9, 1.0) by using simulation of the Sine with Dwell test without ESC operation was done by several Japanese car manufactures.  
(condition: Vehicle speed; 80 km/h, Steering wheel angle; 5x(0.3G steer angle))

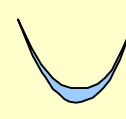

	Simulation software	Vehicle			
			Wheel Base	Weight	Tyre
A	CarSim	FR P-car :	2730 [mm]	1533 [kg]	205/55R16
		A SUV : L	2720	1991	235/55R18
B	In-house soft	FF P-car : B	2700	1570	205/50R17
		SUV : M	2900	1690	205/60R16
C	veDYNA	FF P-car :	2730	1520	215/50R17
		C SUV :	2880	2280	245/50R20
D	In-house soft	FF P-car :	2775	1659	215/55R17
		DSUV : O	2850	2172	265/50R20
E	CarSim	FF P-car :	2635	1375	235/45R17
		E SUV :	2670	1515	225/55R18
F	ADAMS/Car	FF P-car : F	2620	1400	215/45R17
		SUV :	2620	1700	215/55R17
G	ADAMS	SUV :	2640	1896	225/65R17
H	ADAMS	FRP-car :	2440	958	175/65R14

# Lateral Displacement Influenced by Surface Friction(2)

## 2. An Example of time history data (Passenger Car)



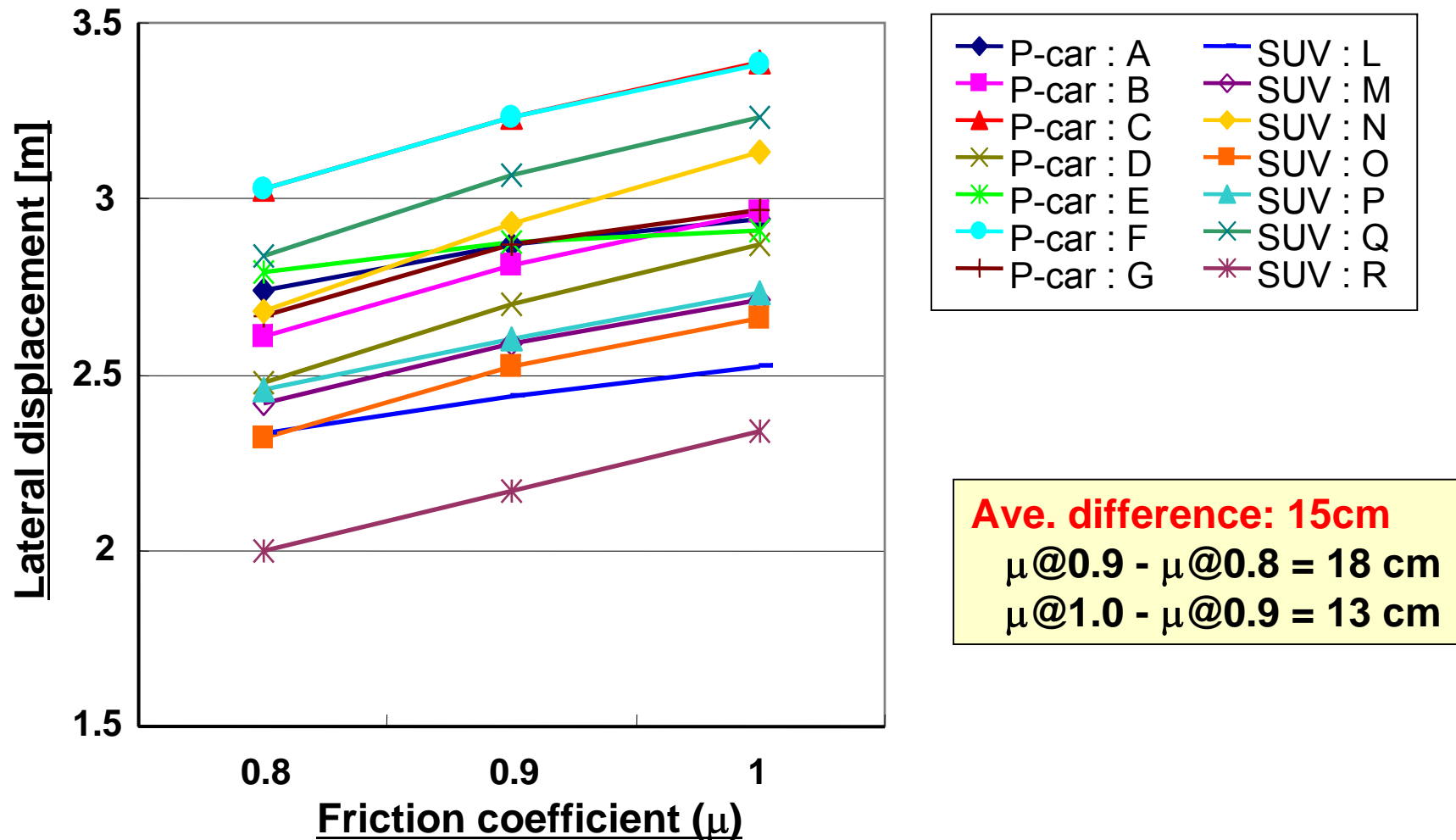
The influence of surface friction to the lateral displacement is small, because

 and  are canceled each other.

**Fig 3 : Time history data of passenger car**

## Lateral Displacement Influenced by Surface Friction(3)

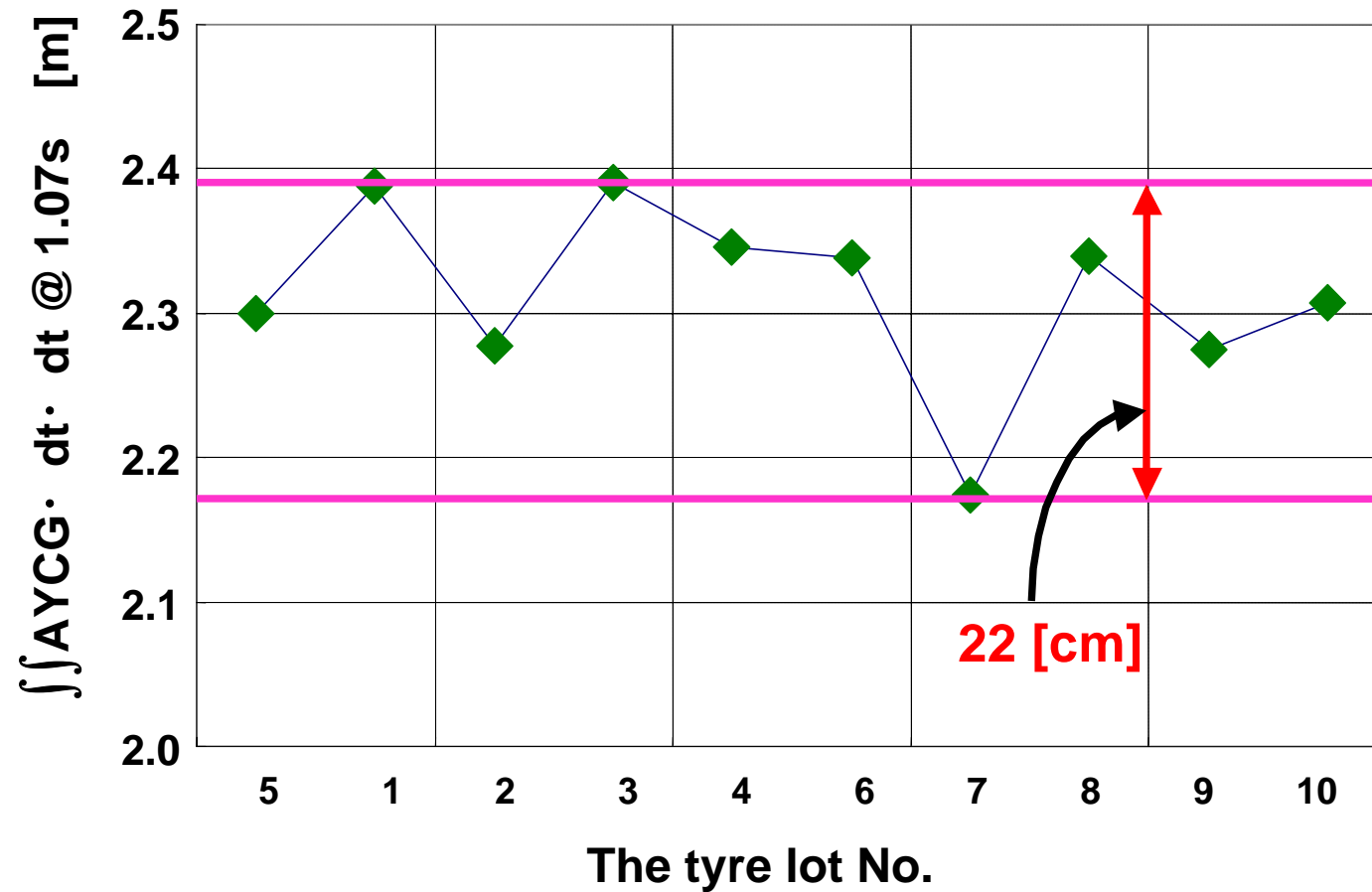
### 3. All results



**Fig 4 . The influence of the surface friction to the lateral displacement**

(5)

= Reference : The testing error range (1)=

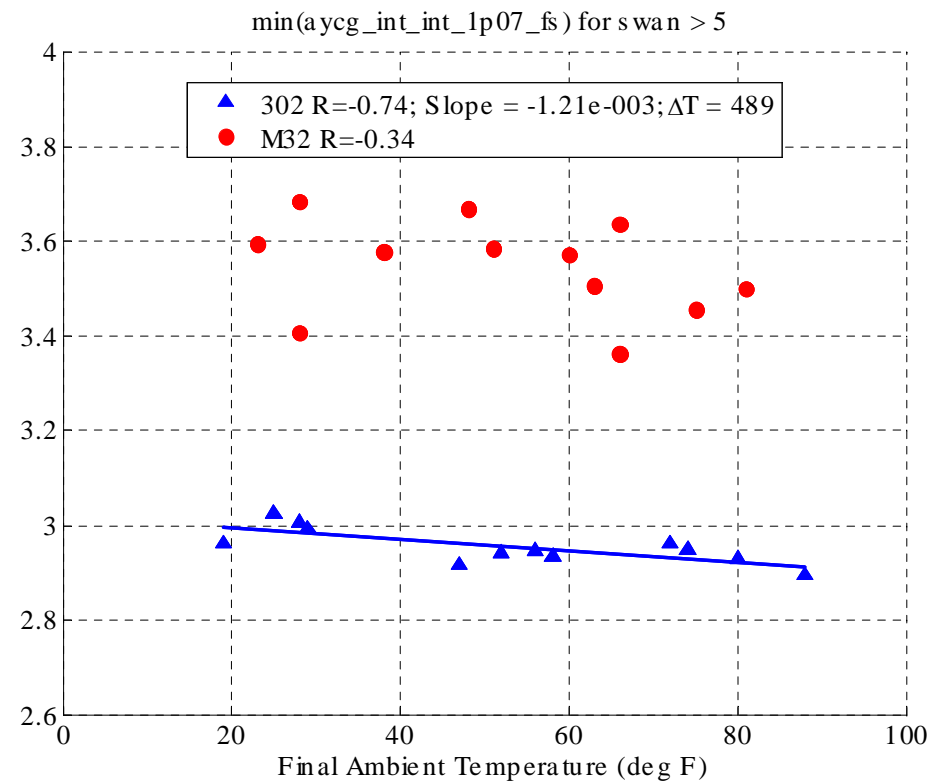
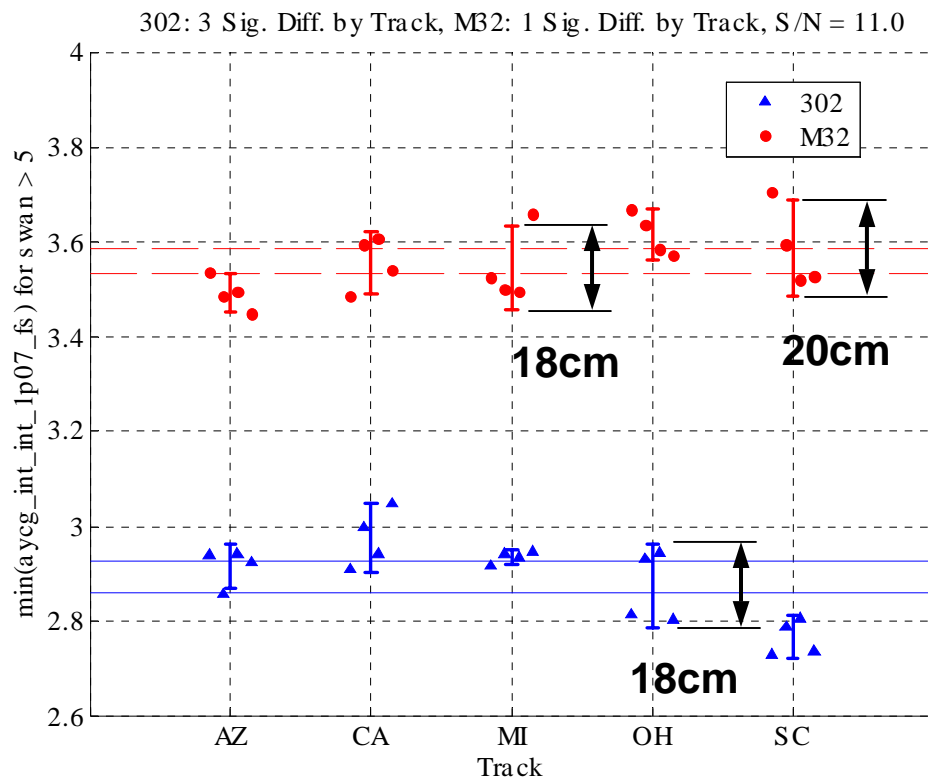


**Fig 5 . An Example of the error range of driving test**  
**by different lot number of tyres**

= Reference : The testing error range (2) = (6)

## “Lateral Displacement” for $SWAN > 5$

- Least sensitivity to temperature ( $\Delta T = 489$  for 302)
- High S/N (11.0)
- 4 significant track differences



From NHTSA docket:No. 25801-9